REMARKS

This Amendment is respectfully submitted to place subject Application in condition for allowance. Claims 1, 5 to 7, 10, 11 and 34 have been amended to correct errors in typing, improve syntax, and more clearly recite the critical elements of Applicants' invention. More particularly, Claim 1 has been amended to recite the limitations of Claim 18. Claim 9 and Claims 12 to 33 have now been canceled, without prejudice.

Claim Rejections - 35 U.S.C. § 102(b)

In the outstanding Office Action, Claims 1 and 2 were rejected under 35 U.S.C. § 102(b), as being anticipated by Brownawell et al. (EP-0 252 606). Applicants respectfully traverse this rejection.

The Brownawell et al. reference of record describes a process said to increase the cetane number of a middle distillate fuel fraction by using one or more non-oxide catalytic metals to selectively oxidize benzylic carbon atoms present in the fuel to ketones. Preferably, Brownawell et al. states, the non-oxide catalyst will be one or more oil or water soluble compounds. On the other hand, the non-oxide catalytic metal compound may be insoluble in both oil and water. In non-preferred cases, the insoluble, non-oxide catalytic metal compound may be in a bulk form or supported on a suitable support material (page 5, lines 27 to 32). The Brownawell et al. reference of record does not define or illustrate the meaning of the term "suitable support material." All of the working examples in the reference of record use oil soluble metal salts; copper sulfate pentrahydrate in Examples 1 to 3, and cobalt naphthenate (6% Co) catalyst solution in Examples 4 to 6.

In contrast, instant Claims 1 and 2 (as well as Claim 34) recite as critical elements of Applicants' process the use of a solid oxidation catalyst comprising a Group VIII metal component and a basic support.

It is the position of Applicants that all claims now presented are patentable over the Brownawell et al. reference of record. Therefore, Examiner Nguyen is respectfully requested withdraw rejection of Claims 1 and 2 under 35 U.S.C. § 102(b).

Claim Rejections - 35 U.S.C. § 103

In outstanding Office Action, Claims 3 to 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Brownawell et al. (EP-0 252 606), in view of U.S. Patent Number 5,637,259 in the name of inventors Jan Z. Galuszka, Safaa Fouda, Raj N. Pandey and Shamsuddin Ahmed (Galuszka et al.). Applicants respectfully traverse this rejection.

The Galuszka et al. reference of record describes a process, using a membrane reactor, for producing hydrogen and syngas (carbon monoxide and hydrogen) from a gaseous mixture of oxygen and natural gas. This process is carried out in the gas phase, typically at temperatures in the range of about 500 to 750 degrees C.

In contrast Applicants' novel process is for selectively oxygenating a distillate feedstock and recovering an effluent stream distillate, i.e., not in the gas phase. McGraw-Hill Dictionary of Scientific and Technical Terms (1974), at page 428, defines the term **distillate** as products of distillation formed by condensing vapors, and the term **distillate fuel oil** as a classification for one of the overhead fractions produced from crude oil in conventional distillation operations.

The Galuszka et al. reference of record states that a variety of known catalysts containing various metals, such as iron, cobalt, nickel, ruthenium, rhodium, palladium iridium, platinum, cerium, etc., usually on any one of a large variety of supports, may be used for their syngas process. However, there is no disclosure or suggestion that even one of the catalysts, suitable for their sysngas process in the gas phase, might be useful for oxygenating a distillate feedstock in a liquid phase.

The Galuszka et al. reference of record provides one list of supports that may be used, i.e. alumina, silica, magnesia, zirconia, yttria, zinc oxide, perovskites, lanthainde oxides along with calcium oxide and magnesia. There is no teaching to select the basic supports for cobalt or any other Group VII metal.

It is the position of Applicants that the combination of the Brownawell et al. and the Galuszka et al. references of record, as relied upon by Examiner, does not disclose or suggest Applicants' process for selectively oxygenating a distillate

feedstock with an oxygen-containing gas in the presence of solid oxidation catalyst comprising a Group VIII metal component and a basic support, and recovering an effluent stream distillate having an oxygen content incorporated therein of about 0.02 to about 20 percent by weight and a TAN number of less than about 2 mg KOH/g.

Attention of Examiner is invited to the working examples in the specification. FIG. 2 graphically depicts results set forth in Table II which show results obtained using preferred catalyst systems in accordance with the present invention (Runs 38 through 55) and comparative results generated using a range of catalysts that are outside the scope of the present claims (Runs 1 through 37 and 56). FIG. 2 clearly demonstrates that selective oxygenation was achieved by Applicants' process with the desirable concomitant low levels of TAN, typically lower than 2mg KOH/g. Further, as the RPM of the autoclave was increased, the oxygen "circulation" rate was increased thereby increasing oxygen incorporation into the diesel effluent **without** an undesirable increase in TAN number of the effluent distillate. Please note that in comparative runs using a Pt-Cr on alumina catalyst, as the RPM was increased, the TAN number was increased detrimentally.

FIG. 3 graphically illustrates the critical advantage in Applicants' process obtained by using a catalyst comprising a Group VIII metal component and a basic support. In particular, cobalt on basic supports, e.g. CaO and MgO, were compared with comparative processes using catalysts wherein cobalt was supported on non-basic supports, i.e. Mg silicate, clay, alumina, SnO_2, and ZnO. These data clearly show that the desirable results of low TAN coupled with high oxygen incorporation into the effluent distillate were achieved when the Group VIII metal was on a basic support. Applicants believe that the use of basic support such as MgO and CaO suppressed TAN formation without reducing oxygen incorporation.

Therefore, Applicants respectfully request Examiner to withdraw the rejection under 35 U.S.C. § 103(a) of Claims 3 to 34 based upon EP 0 252 606 in combination with Galuszka et al.

Applicants agree with Examiner that the references of record but not applied do not disclose or suggest Applicants' novel subject matter which includes, for example, a process for selectively oxygenating a distillate feedstock which process comprises

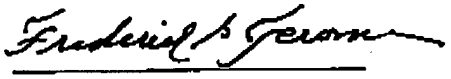
contacting said feedstock with an oxygen-containing gas in an oxidation zone at oxidation conditions in the presence of solid oxidation catalyst comprising cobalt and a basic support, in an amount ranging from 4 to 12 percent by weight based on the total weight of the catalyst and magnesium oxide, and recovering an effluent stream distillate having an oxygen content incorporated therein of about 1.8 to about 10 percent by weight and a TAN number of less than about 1 mg KOH/g

Applicant respectfully requests Examiner Nguyen to pass subject application for allowance.

Do not hesitate to contact Frederick S. Jerome whose telephone number is (630) 832-7974 (FAX (630) 832-7976) if additional assistance is needed regarding this paper or earlier papers for Applicants.

Applicants and their undersigned Attorney appreciate Examiner's attention and further consideration of this matter.

Respectfully submitted,



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